Claims

1. A thin film semiconductor device, comprising:

a substrate;

an underlevel protection layer comprising an insulating material the underlevel protection layer being formed on at least a portion of the substrate; and

a semiconductor film formed on the underlevel protection layer creating an underlevel protection film, the semiconductor film being an active layer of a transistor and having a thickness between about 9 nm and 135 nm, the underlevel protection film comprising a plurality of different films, and the implantation dose is 1×10^{18} cm^3 or less, a top layer of film and a second layer of film, and the top layer of the underlevel protection film being a silicon oxide film formed on the second layer of film.

2. A thin film semiconductor device, comprising:

a glass substrate of 300 mm x 300 mm or more;

an underlevel protection layer comprising an insulating material, the underlevel protection layer being formed on at least a portion of the substrate; and

a field effect transistor having:

three silicon oxide semiconductor films formed as said underlevel protection layer,

a gate insulator layer formed on the semiconductor film,

a gate electrode formed on the gate insulator layer; and

an electrically insulating interlevel insulator layer formed over the gate electrode and between interconnects of said field effect transistor, the thin film semiconductor device having a thickness that is a sum of thicknesses of the underlevel protection layer, the gate insulator layer, and the interlevel insulator layer, and the thickness of the thin film semiconductor device being about 2 μm or less.